

**REMARKS:**

Claims 1-4, 8, 11-15, and 18-43 are currently pending in the subject Application.

Claims 2, 3, 9, 10, 16, and 17 have been previously canceled without prejudice.

Claims 1, 4-8, 11-15, and 18-43 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,047,290 to Kennedy et al. ("*Kennedy*") in view of Hillier et al., "Introduction to Operations Research" ("*Hillier*").

By this amendment, Claims 24, 30, 36, and 42 have been canceled without prejudice and Claims 1, 8, 15, 22, 23, and 43 have been amended to more particularly point out and distinctly claim the Applicants invention. In addition, Claims 25-29, 31-35, and 37-41 have been amended to correct certain dependencies. By making these amendments, the Applicant makes no admission concerning the merits of the Examiner's rejection, and respectfully reserve the right to address any statement or averment of the Examiner not specifically addressed in this response. Particularly, the Applicant reserves the right to pursue broader claims in this Application or through a continuation patent application. No new matter has been added.

A Final Office Action in the subject Application was mailed to the undersigned on 17 August 2006 that provides for a response period ending 17 November 2006. The Applicants filed a Response After Final on 26 September 2006, within two (2) months of the date of the Final Office Action. An Advisory Action was mailed to the undersigned on 13 October 2006. The Applicants respectfully reiterate here the arguments set forth in the Amendment After Final filed on 26 September 2006, as if fully set forth herein.

**REJECTION UNDER 35 U.S.C. § 103(a):**

Claims 1, 4-8, 11-15, and 18-43 stand rejected under 35 U.S.C. § 103(a) over *Kennedy* in view of *Hillier*.

The Applicants respectfully submit that the ***amendments to independent Claims 1, 8, 15, 22, and 23 have rendered moot the Examiner's rejection of Claims 1, 4-8, 11-15, and 18-43 and the Examiner's arguments in support of the rejection of Claims 1, 4-8, 11-15, and 18-43.*** The Applicants further respectfully submit that amended independent Claims 1, 8, 15, 22, and 23 in their current amended form contain unique and novel limitations that are not disclosed, suggested, or even hinted at in *Kennedy* and *Hillier*. Thus, the Applicants respectfully traverse the Examiner's obvious rejection of Claims 1, 4-8, 11-15, and 18-43 under 35 U.S.C. § 103(a) over the proposed combination of *Kennedy* and *Hillier*, either individually or in combination.

### **The Proposed *Kennedy-Hillier* Combination Fails to Disclose, Teach, or Suggest Various Limitations Recited in Applicants Claims**

For example, with respect to independent Claim 8, this claim recites:

***A system for generating a supply chain plan***, comprising:

***a database*** operable to store data describing a supply chain network comprising a plurality of buffers, each buffer being operable to store a plurality of items and associated with a corresponding time variable, the supply chain network constrained by a constraint;

***a linear programming optimizer coupled to the database*** and operable to:

***generate a linear programming problem*** for the supply chain network;

***approximate the linear programming problem*** by discretizing the time variables of the buffers to yield a plurality of discretized time variables and by relaxing the constraint to yield a relaxed constraint; and

***calculate an optimized supply chain plan for the approximated linear programming problem***, the optimized supply chain plan describing a quantity of items at each buffer for at least one time value of the corresponding time variable and ***including a list of producers operable to supply the items to each buffer***, and

***a heuristic solver*** coupled to the database and operable to adjust the optimized supply chain plan to satisfy the constraint, wherein the heuristic solver is operable to adjust the optimized supply chain plan by:

repeating the following until a last upstream buffer is reached:

selecting a buffer;

adjusting one of (a) the quantity of items at the selected buffer, and (b) at least one time value of the time variable of the selected buffer to satisfy the constraint; and

proceeding to a next upstream buffer; and

repeating the following until a last downstream buffer is reached:

selecting a buffer;

planning production to either (a) supply the items to the selected buffer at the adjusted time value, or (b) supply the adjusted quantity of items to the selected buffer; and

proceeding to a next downstream buffer; and

***an order planner*** coupled to the database and operable to ***generate an order plan by planning production to supply the quantity of items to each buffer according to the list of producers associated with the buffer.*** (Emphasis Added).

Independent Claims 1, 15, 22, and 23 recite similar limitations. *Kennedy* or *Hillier*, either individually or in combination, fail to disclose each and every limitation of independent Claims 1, 8, 15, 22, and 23.

#### **The Office Action Acknowledges that *Kennedy* Fails to Disclose Various Limitations Recited in Applicants Claims**

The Applicants respectfully submit that the Office Action acknowledges, and the Applicants agree, that *Kennedy* fails to disclose the emphasized limitations noted above in independent Claim 8. Specifically the Examiner acknowledges that *Kennedy* fails to disclose “that ***the algorithm used for the supply chain network is a generated linear programming problem, approximating this linear programming problem by discretizing the time variables of the buffers to yield a plurality of discretized time variables and by relaxing the constraint to yield a relaxed constraint, or calculating an optimized supply chain plan for the approximated linear programming problem.***” (17 August 2006 Final Office Action, Page 8). (Emphasis Added). However, the Examiner asserts that the cited portions of *Hillier* disclose the acknowledged shortcomings in *Kennedy*. The Applicants respectfully disagree and respectfully traverse the Examiner's rejection.

The Applicants respectfully submit that *Hillier* fails to disclose, teach, or suggest Applicants claim limitations regarding a system, method, or logic “**for generating a supply chain plan**” and in particular *Hillier* fails to disclose, teach, or suggest independent Claim 8 limitations regarding a “**linear programming optimizer coupled to the database**” operable to “**generate a linear programming problem** for the supply chain network”. Rather *Hillier* merely discloses linear programming for mathematical functions. (Pages 26 and 26). Thus, *Hillier* cannot provide for **generating a linear programming problem** for the supply chain network, since *Hillier* does not even provide for a **linear programming optimizer coupled to a database**, in the first place.

The Applicants further respectfully submit that *Hillier* fails to disclose, teach, or suggest independent Claim 8 limitations regarding a “**linear programming optimizer coupled to the database**” operable to “**approximate the linear programming problem** by discretizing the time variables of the buffers to yield a plurality of discretized time variables and by relaxing the constraint to yield a relaxed constraint”. In particular, it appears that the Examiner is equating “**approximat[ing] the linear programming problem**” recited in independent Claim 8 with the “**linear programming relaxation problem**” disclosed in *Hillier*. (17 August 2006 Final Office Action, Page 9). However, the “**linear programming relaxation problem**” disclosed in *Hillier*, merely provides for a method to check to see “whether a fortuitous outcome has occurred”, and **does not include or is not even related to approximat[ing] the linear programming problem**, as recited in independent Claim 8. (Page 512, Section 1). In contrast, “**approximat[ing] the linear programming problem**” recited in independent Claim 8 provides approximation “by discretizing the time variables of the buffers to yield a plurality of discretized time variables and by relaxing the constraint to yield a relaxed constraint”. Thus, the Applicants respectfully submit that the equations forming the foundation of the Examiner’s comparison between *Hillier* and independent Claim 8 cannot be made. The Applicants further respectfully submit that these distinctions alone are sufficient to patentably distinguish independent Claim 8 from *Hillier*.

The Applicants still further respectfully submit that *Hillier* fails to disclose, teach, or suggest independent Claim 8 limitations regarding a “**linear programming optimizer**

*coupled to the database*” operable to “*calculate an optimized supply chain plan for the approximated linear programming problem*”, the optimized supply chain plan describing a quantity of items at each buffer for at least one time value of the corresponding time variable and including a list of producers operable to supply the items to each buffer”. In particular, it appears that the Examiner is equating “*calculat[ing] an optimized supply chain plan*” recited in independent Claim 8 with the “*simplex method*” disclosed in *Hillier*. (17 August 2006 Final Office Action, Page 9). However, this “*simplex method*” disclosed in *Hillier*, merely “rounds the noninteger values to integers in the resulting solution”, and **does not include or is not even related to calculating an optimized supply chain plan**, as recited in independent Claim 8. (Page 513, Section 1). In contrast, “*calculat[ing] an optimized supply chain plan*” recited in independent Claim 8 is calculated **for the approximated linear programming problem** and describes a “quantity of items at each buffer for at least one time value of the corresponding time variable and including a list of producers operable to supply the items to each buffer”. Thus, *Hillier* cannot provide for **calculating an optimized supply chain plan**, since as discussed above, *Hillier* does not even provide for **approximating the linear programming problem**, in the first place. Accordingly, the Applicants respectfully submit that the equations forming the foundation of the Examiner’s comparison between *Hillier* and independent Claim 8 cannot be made. The Applicants further respectfully submit that these distinctions alone are sufficient to patentably distinguish independent Claim 8 from *Hillier*.

### **The Office Action Fails to Properly Establish a *Prima Facie* case of Obvious over the Proposed *Kennedy-Hillier* Combination**

The Applicants respectfully submit that the Office Action fails to properly establish a *prima facie* case of obviousness based on the proposed combination of *Kennedy* or *Hillier*, either individually or in combination. The Office Action has not shown the required teaching, suggestion, or motivation in these references or in knowledge generally available to those of ordinary skill in the art at the time of the invention to combine these references as proposed. The Office Action merely states that “it would be obvious to one of ordinary skill in the art at the time of the invention to use LP relation techniques (and branch and

bound techniques)". (17 August 2006 Final Office Action, Page 9). The Applicants respectfully disagree.

The Applicants further respectfully submit that this purported advantage relied on by the Examiner is nowhere disclosed, taught, or suggested in *Kennedy* or *Hillier*, either individually or in combination. The Examiner asserts that the motivation to combine the references as proposed would be "in order to increase the ease of obtaining an optimal solution by creating a model that allows one to **divide and conquer** by dividing a large problem into its smaller subproblems and conquering these subproblems individually." (17 August 2006 Final Office Action, Page 9). (Emphasis Added). The Applicants respectfully disagree and further respectfully request clarification as to how the Examiner arrives at this conclusion. For example, how does "**divide and conquer**" provide for obtaining an optimal solution and to what extent does the Examiner purport that this "**divide and conquer**" actually applies to the subject Application. ***The Applicants respectfully request the Examiner to point to the portions of Kennedy or Hillier which contain the teaching, suggestion, or motivation to combine these references for the Examiner's stated purported advantage.*** The Applicants further respectfully submit that the Examiner is using the subject Application as a template to formulate reconstructive hindsight, which constitutes impermissible use of hindsight under 35 U.S.C. § 103(a).

A recent Federal Circuit case makes it crystal clear that, in an obviousness situation, the ***prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art.*** *In re Lee*, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002). (Emphasis Added). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. With respect to the subject Application, the ***Examiner has not adequately supported the selection and combination of Kennedy or Hillier to render obvious the Applicants claimed invention.*** The Examiner's conclusory statements that "it would be obvious to one of ordinary skill in the art at the time of the invention to use LP relation techniques (and branch and bound techniques)" and "in order to increase the ease of obtaining an optimal solution by creating a model that allows one to **divide and conquer** by dividing a large

problem into its smaller subproblems and conquering these subproblems individually”, ***does not adequately address the issue of motivation to combine.*** (17 August 2006 Final Office Action, Page 9). This factual question of motivation is material to patentability, and cannot be resolved on subjective belief and unknown authority. *Id.* It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to “[use] that which the inventor taught against its teacher.” *W.L. Gore v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983). Thus, ***the Office Action fails to provide proper motivation for combining the teachings of Kennedy or Hillier***, either individually or in combination.

### **The Applicants Claims are Patentable over the Proposed *Kennedy-Hillier* Combination**

The Applicants respectfully submit that independent Claims 1, 15, 22, and 23 include limitations similar to those discussed above in connection with independent Claim 8. Thus, independent Claims 1, 8, 15, 22, and 23 are considered patentably distinguishable over *Kennedy* and *Hillier* for at least the reasons discussed above in connection with independent Claim 8.

With respect to dependent Claims 4-7, 11-14, 18-21, 25-29, 31-35, 37-41 and 43: Claims 4-7 and 25-29 depend from independent Claim 1; Claims 11-14 and 31-35 depend from independent Claim 8, Claims 18-21 and 37-41 depend from independent Claim 15; and Claim 43 depends from independent Claim 23. As mentioned above, each of independent Claims 1, 8, 15, 22, and 23 are considered patentably distinguishable over the proposed combination of *Kennedy* and *Hillier*. Thus, dependent Claims 4-7, 11-14, 18-21, 25-29, 31-35, 37-41 and 43 are considered to be in condition for allowance for at least the reason of depending from an allowable claim.

The Applicants respectfully submit that Claims 1, 4-8, 11-15, and 18-23, 25-29, 31-35, 37-41, and 43 are not rendered obvious by the proposed combination of *Kennedy* and *Hillier*. The Applicants further respectfully submit that Claims 1, 4-8, 11-15, and 18-23, 25-29, 31-35, 37-41, and 43 are in condition for allowance. Thus, the Applicants respectfully request that the rejection of Claims 1, 4-8, 11-15, and 18-23, 25-29, 31-35, 37-41, and 43

under 35 U.S.C. § 103(a) be reconsidered and that Claims 1, 4-8, 11-15, and 18-23, 25-29, 31-35, 37-41, and 43 be allowed.

#### **THE LEGAL STANDARD FOR OBVIOUSNESS REJECTIONS UNDER 35 U.S.C. § 103:**

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, ***there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.*** Second, there must be a reasonable expectation of success. Finally, ***the prior art reference*** (or references when combined) ***must teach or suggest all the claim limitations.*** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, ***and not based on applicant's disclosure.*** *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. Moreover, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); M.P.E.P. § 2143.03.

With respect to alleged obviousness, ***there must be something in the prior art as a whole to suggest the desirability,*** and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. The consistent criterion for determining obviousness is whether the prior art would have suggested to one of ordinary skill in the art that the process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the



Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894 (Fed. Cir. 1988); M.P.E.P. § 2142.

A recent Federal Circuit case makes it clear that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35.

**CONCLUSION:**

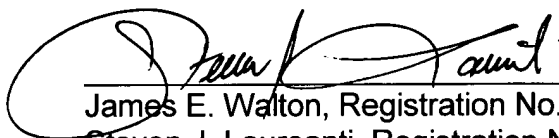
In view of the foregoing remarks, this application is considered to be in condition for allowance, and early reconsideration and a Notice of Allowance are earnestly solicited.

A Request for Continued Examination (RCE) is being filed in duplicate concurrently herewith to facilitate the processing of this deposit account authorization. **The Commissioner is hereby authorized to charge the RCE Fee of \$790.00 to Deposit Account No. 500777.** Because this Amendment is filed prior to the ending of the response period 17 November 2006 of the Final Office Action mailed on 17 August 2006, no additional fees are deemed to be necessary; however, the undersigned hereby authorizes the Commissioner to charge any additional fees that may be required, or credit any overpayments, to **Deposit Account No. 500777.**

**Please link this application to Customer No. 53184 so that its status may be checked via the PAIR System.**

Respectfully submitted,

11 / 13 / 06  
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